

REMARKS

The Office Action dated September 26, 2005, has been carefully considered. Claims 1-7 and 9-33 are pending. New Claims 28-33 have been added to further define the protection to which Applicant is entitled. Applicant requests that the Examiner consider the above amendments and the following remarks, and pass the application to allowance.

RESPONSE TO OFFICE ACTION:**Rejections under 35 U.S.C. §102:**

Claims 1, 2, 5, 6, 16, 23, and 24 were rejected under 35 U.S.C. §102(b) as being anticipated by Li et al. (hereinafter Li), U.S. Patent No. 6,392,756.

Claim 1 as amended recites a spectroscopic system for measuring thickness of a material, wherein the system comprises: a tunable light source, wherein the source provides a beam of light incident to the material; a splitter, wherein the splitter splits the beam of light from the wavelength source into a measurement light path and a reference light path, and wherein the measurement light path is directed to the material, and wherein the reference light path is used to calibrate light wavelength; a first detector that detects light from the light source either reflected from or transmitted through the material; a second detector that detects the reference light; and a computing device that computes the material thickness based on data received from the detector.

Claim 16 as amended recites a method of measuring material thickness, wherein the method comprises: loading the material to be measured into a holder of a spectroscopic system, wherein the system comprises: a tunable light source which provides a beam of light incident to the material; a splitter, wherein the splitter splits the beam of light from the wavelength source into a measurement light path and a reference light path, and wherein the measurement light path is directed to the material, and wherein the reference light path is used to calibrate light wavelength; a first detector which detects light from the light source either reflected from or transmitted through the material; a second detector that detects the reference light; and a computing device that computes the material thickness based on data

received from the first and second detectors; measuring the light reflected from or transmitted through the material at at least two different wavelengths using the first detector; and computing material thickness using a computing device based on data received from the detector.

Li relates to methods and apparatus for optically determining physical parameters of thin films deposited on a complex substrate, and in particular to measurements of thin films on complex substrates for obtaining physical parameters such as thickness t , refraction index n and extinction coefficient k . In Li, the method calls for providing a test beam having a wavelength range and providing a complex substrate which has at least two layers and exhibits a non-monotonic and an appreciably variable substrate optical response over wavelength range.

Quick et al. (U.S. Patent No. 6,025,916) relates to a device for measuring polymer build-up on plasma chamber walls provides a cooled window on which a film may form. Light passing through the window outside the chamber may be measured by interferometric techniques to determine change in film thickness and thus indicate when cleaning is required and the success of cleaning operations

Li however, does not teach or suggest a splitter, wherein the splitter splits the beam of light from wavelength source into a measurement light path and a reference light path. In addition, there is no suggestion or motivation to modify Li to include a beam splitter as recited in Claims 1 and 16, since such a modification of Li, would, in effect, destroy the objective or function sought to be achieved by Li, i.e., a system which delivers accurate results based on the use of a complex substrate. Accordingly, Claims 1 and 16 should be allowable. Claims 2, 5, 6, 23 and 24 are dependent from Claims 1 and 16 and should be allowable for the reasons set forth above.

Rejections under 35 U.S.C. §103:

Claims 3, 4, and 18-22 were rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al, U.S. Patent No. 6,392,756.

As set forth above, there is no motivation or suggestion to modify Li to include motivation to modify Li to include a beam splitter as recited in Claims 1 and 16, since such a modification of Li, would, in effect, destroy the objective or function sought to

be achieved by Li, i.e., a system which delivers accurate results based on the use of a complex substrate. Accordingly, for the same reasons that Claims 1 and 16 are allowable, Claims 3, 4, and 18-22 should be allowable.

Claims 8-15 and 25-27 were rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. (U.S. Patent No. 6,392,756) in view of Quick et al. (hereinafter Quick), U.S. Patent No. 6,025,916.

Claim 8 has been cancelled without prejudice or disclaimer of the subject matter contained therein.

As set forth above, there is no motivation or suggestion to modify Li to include motivation to modify Li to include a beam splitter as recited in Claims 1 and 16, since such a modification of Li, would, in effect, destroy the objective or function sought to be achieved by Li, i.e., a system which delivers accurate results based on the use of a complex substrate. Accordingly, for the same reasons that Claims 1 and 16 are allowable, Claims 9-15 and 25-27 should be allowable.

Claims 13-15 were rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. (U.S. Patent No. 6,392,756) in view of Quick et al. (6,025,916), as applied to claim 12 above, and further in view of Ruhl, Jr. et al, U.S. Patent No. 5,357,336.

Ruhl relates to optical instruments such as spectrometers and, more particularly, to a method and apparatus for calibrating such instruments.

As set forth above, there is no motivation or suggestion to modify Li to include motivation to modify Li to include a beam splitter as recited in Claims 1 and 16, since such a modification of Li, would, in effect, destroy the objective or function sought to be achieved by Li, i.e., a system which delivers accurate results based on the use of a complex substrate. Accordingly, for the same reasons that Claim 1 is allowable, Claims 13-15 should be allowable.

New Claims 28-32:

New Claim 28 recites a spectroscopic system for measuring thickness of a planar material using interferometry internal to the material, the system comprising: a quasi-monochromatic light source which provides wavelengths of light varied in increments of less than 0.5 nm, and wherein the wavelengths of light are not completely absorbed by the material to be measured; a photodetector that detects light reflected from or transmitted through the material; and a computing device to calculate the material's transmission or reflectivity based on an interference signal from the photodetector, and wherein the material's transmission or reflectivity is used to calculate the thickness of the material based on a knowledge of a material's refractive data.

Since neither Li nor Quick teaches or suggests a system for measuring thickness of a planar material using interferometry internal to the material, wherein a quasi-monochromatic light source provides wavelengths of light varied in increments of less than 0.5 nm, Claims 28-33 should be allowable.

Conclusion:

It is respectfully submitted that the claims are presently in condition for immediate allowance, and such action is requested. If, however, any matters remain that can be clarified by the Examiner's amendment, the Examiner is cordially invited to contact the undersigned by telephone at the number below. In the event that there are any questions concerning the amendments or the application in general, the Examiner is respectfully urged to contact the undersigned so that prosecution may be expedited.

Respectfully submitted,

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